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EXAMINER	
ALLISON, ANDRAE S	
ART UNIT	**PAPER NUMBER**
2624	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/670,640	KITSON, DAVID	
	Examiner	Art Unit	
	Andrae S. Allison	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 April 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Remarks

1. The Office Action has been issued in response to amendment filed April 28, 2007. Claims 1-33 are pending. Applicant's arguments have been carefully and respectfully considered in light of the instant amendment, and are not persuasive. Accordingly, this action has been made FINAL.

101 Rejections

Claims 14, 22 and 28 have been amended to overcome the 101 statutory rejections. Therefore, the rejection has been removed.

Response to 103 Rejection Arguments

In response to Applicant's argument on page 12 [p][2], that Krause 3D bone model of bones under deformation and Applicant's inventions does not, the Examiner contends that these arguments has grounds since the feature discussed is not present in the claims. Applicant further argued that Krause failed to disclose the limitation "geometrical construct comprising a plurality of interrelated shapes and lines", again the features discussed were not present in the rejected claims. Moreover, in Figure 7, Krause clearly shows a geometrical construct comprising a plurality of interrelated shapes and in column 12, lines 32-53 describes the relationship between the shapes. On page 13, [p][001-002] Applicant argued Krause does not teach or suggest geometric

construct being displayed over the patient image. However, the Examiner disagrees with Applicant and argues that Krause does indeed shows the 3D bone template model being displayed over the patient image in Fig 7 . The Examiner also further equated a plurality of interrelated parameters with 3D positioning and scaling, however, Applicant argued that such interpretation was incorrect. Again, the Examiner disagrees with Applicant since the plurality of interrelated parameters can be reasonably interpreted 3D position and scaling since both are used in determining the optimal 3D model for a patient.

Applicant further argued that the Examiner erroneously interpreted allowing a user reconfiguring the geometric construct, however the Examiner disagrees. Krause clearly teaches in columns 12 and 13 a feedback process where the 3D bone model is reconfigured to match the patient bone.

Applicant further argued on page 18, [p][003-004] that the limitation "automatically selecting at least one template from the library in accordance with the geometric parameter adjusted by the user" was not taught by Krause, an argument to which the Examiner disagrees. Krause clearly shows that the updated 3D bone model is used for the performing surgery. Applicant further argued that Krause method adds models to the library instead of taking a model from the library. The Examiner argues that the Krause reference make adjustments to the 3D bone model according to the patient bones and reconfigures the 3D model accordingly.

Krause did not specifically mention scaling the patient image according to the user input, therefore the Examiner introduces Clough to cure the deficiencies of Krause

which discloses the missing limitation of Krause. Applicant questions the motivation for combining both references and further states that Clough does not teach the missing limitation. The Examiner disagrees with Applicant and contends that Clough clearly teaches scaling an image in response to a user input (see column 17, lines 33-38). The Examiner then provided the motivation for combining both reference (see action). Moreover, Applicant's invention and Clough are in the same field of endeavor of manipulating images on a screen and are trying to solve the same problem of scaling features of images. Also note that the independent claim did not mention that the images were x-ray and the scaling was done for correcting for magnification errors.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-5, 10, 14-18, 22-23, and 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krause et al (US Patent No.: 6,701,174) in view of Clough (US Patent No.: 5,977,979).

As to claim 1, Krause discloses a computer-implemented method of planning orthopaedic surgery (computer assisted orthopedic surgery; column 1, lines 16-17)

comprising: providing a library of templates (52, 3D template geometry database, see Fig 4) representing orthopaedic prostheses (see column 21, line 17); displaying a patient image (e.g. 65, see Fig 4) showing anatomical features that are relevant for the orthopedics surgery being planned (column 11, lines 13-20 and lines 65-67 and column 12, line 1); scaling the patient image according to user input; displaying over the patient image a geometrical construct comprising a plurality of interrelated shapes (see Fig 1) and lines (3D-bone template model, column 12, lines 32-35) defined by a plurality of interrelated geometric parameters (e.g. position and scaling parameters, column 12, line 21-29); allowing a user to reconfigure the geometrical construct by adjusting the geometric parameters according to the anatomical features of the underlying patient image (see column 12, lines 30-32, where the scaling and positioning parameters are optimized); and automatically selecting at least one template from the library in accordance with the geometric parameters adjusted by the user (note that the geometric parameters are updated, column 12, lines 35-36).

However, Krause does not expressly disclose scaling the patient image according to user input. Clough discloses a 3D simulation method (column 1, line 8) that includes scaling the patient image according to user input (column 17, lines 33-38). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have added the 3D simulation method of Clough to the orthopedic surgery method of Krause to scale a patient's images according to a user input.

Note that the above reconfiguration process is automated.

As to claim 9, Krause discloses a computer-implemented method of planning orthopaedic surgery (computer assisted orthopedic surgery; column 1, lines 16-17), comprising: providing a library of templates (52, 3D template geometry database, see Fig 4) representing orthopaedic implants; displaying first and second patient images (e.g. 64 and 65, see Fig 4) showing anatomical features that are relevant for the orthopaedic surgery being planned; scaling the first and second patient images according to user input; displaying over the first patient image a first view of a geometrical construct (3D-bone template model, column 12, line 25), the geometrical construct being defined by a plurality of geometric parameters interrelated in three dimensions; displaying over the second patient image a second view of the geometrical construct (note that the 3D-bone template model is over layed with a model of the patient bone, and the patient's bone model is made up of the first and second images, see column 12, lines 32-35); allowing a user to reconfigure the geometrical construct according to the anatomical features of the underlying patient images, by adjusting geometric parameters adjustable (e.g. position and scaling parameters, column 12, line 21-29) in the first and second views (see column 12, lines 30-32, where the scaling and positioning parameters are optimized); and selecting at least one template from the library in accordance with the geometric parameters set by the user (note that the geometric parameters are updated, column 12, lines 35-36).

However, Krause does not expressly disclose scaling the first and second patient images according to user input. Clough discloses a 3D simulation method (column 1, line 8) that includes scaling the first and second patient images according to user input

(column 17, lines 33-38). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have added the 3D simulation method of Clough to the orthopedic surgery method of Krause to scale the first image to match the second or reverse in case either were captured at different magnification according to a user input.

Claim 14 differ from claim 1, only in that claim 14 is computer program product claim whereas, claim 1 is method claim. Thus, claim 14 is analyzed as previously discussed with respect to claim 1 above.

Claim 22 differ from claim 9, only in that claim 22 is computer program product claim whereas, claim 9 is method claim. Thus, claim 22 is analyzed as previously discussed with respect to claim 9 above.

As to claim 29, this claim differs from claim 1 only in that claim 29 is computer system whereas, claim 1 is method and the limitations memory, processor and display device are additively recited. Krause clearly teaches a computer system comprising: a memory (50, see Fig 3); a processor (30, see Fig 2) and display device (40, see Fig 2).

As to claim 31, this claim differs from claim 9 only in that claim 31 is computer system whereas, claim 9 is method and the limitations memory, processor and display device are additively recited. Krause clearly teaches a computer system comprising: a memory (50, see Fig 3); a processor (30, see Fig 2) and display device (40, see Fig 2).

As to claim 2, Krause teaches the method wherein the patient image is an X-ray image (e.g. 65, see Fig 4).

As to claim 3, Krause teaches the method, wherein the geometric parameters include lengths (size, column 12, line 26).

As to claim 4, Krause teaches the method of claim 1, and further comprising, before the automatically selecting: displaying a further patient image showing anatomical features that are relevant for the orthopaedic surgery being planned; scaling the further patient image according to user input; displaying over the further patient image a further geometrical construct defined by a plurality of interrelated further geometric parameters; and allowing a user to reconfigure the further geometrical construct by adjusting the further geometric parameters according to the anatomical features of the underlying further patient image; and wherein automatically selecting at least one template is in accordance with the geometric parameters and the further geometric parameters adjusted by the user (note that two images of a patient's bone are being process see column 11, lines 54-67 and column 12, lines 1-41)

As to claim 5, Krause teaches the method wherein the patient image is an anterior-posterior view (66, see Fig 4) and the further patient image is a medio-lateral view (65, see Fig 4).

As to claim 10, Krause teaches the method, wherein the first patient image is an anterior-posterior (66, see Fig 4) view and the second patient image is a medio-lateral view (65, see Fig 4).

Claims 14 –18 differ from claim 2-5, only in that claims 14-18 are computer program product claims whereas, claim 2-5 are method claims. Thus, claims 14-18 are analyzed as previously discussed with respect to claims 2-5 above.

Claim 23 differ from claim 10, only in that claim 23 is computer program product claim whereas, claim 10 is method claim. Thus, claim 23 is analyzed as previously discussed with respect to claim 10 above.

As to claim 27, Krause teaches the computer program product wherein the machine-readable instructions (column 8, line 42) are stored in a recording medium (50, see Fig 3).

As to claim 28, Krause teaches the computer program product wherein the machine-readable instructions are conveyed on a transmission medium (e.g. internet, column 8, line 11).

Claim 30 differ from claim 4, only in that claim 14 is computer system claim whereas, claim 4 is method claim. Thus, claim 30 is analyzed as previously discussed with respect to claim 4 above.

As to claim 32, Krause teaches the computer system wherein the library of templates is stored such that it can be accessed by the processor via the Internet (column 8, line 11).

As to claim 33, neither Krause or Clough disclose the computer system wherein the patient images are stored in an archive comprised within a Picture Archiving and Communication System. However, it would have been obvious to have the patient images are stored in an archive comprised within a Picture Archiving and Communication System so that the patient's image data is stored at a centralized location further Picture Archiving and Communication System is well know in the art (OFFICIAL NOTICE).

4. Claim 6-8, 11-13, 19-21 and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krause et al (US Patent No.: 6,701,174) in view of Clough (US Patent No.: 5,977,979) further in view of Tanaka (US Patent No.: 6,692,448).

As to claim 6, neither Krause or Clough disclose the method wherein the geometric parameters are adjusted according to anatomical features of a femur so as to

allow automatic selection of a template representing a femoral component of a hip prosthesis.

Tanaka teaches an artificial bone template selection method (column 1, lines 12-13) that includes the geometric parameters are adjusted according to anatomical features of a femur so as to allow automatic selection of a template representing a femoral component of a hip prosthesis (see column 7, lines 40-65 and column 8, lines 1-4, where vector data, i.e. geometrical parameters are used for the selection of a femur template).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to added the artificial bone template selection method of Tanaka to the computer assisted orthopedic surgery method of Krause as modified by Clough to efficiently select an artificial bone template suitable for the part of bone to be replaced by artificial bone out of a plurality of artificial bone template prepared in advance (column 2, lines 1-4).

As to claim 7, note the discussion above, Tanaka does not disclose expressly the method wherein the geometric parameters are adjusted according to anatomical features of a pelvis so as to allow automatic selection of a template representing an acetabular component of a hip prosthesis. However it would have been obvious to used the artificial bone template selection method of Tanaka because the method allows the selection of suitable template for any bone in the body by using vector data to deform the shape of a perspective template to match the shape of a bone for e.g. the

acetabular bone.

As to claim 8, note the discussion above Tanaka does not disclose expressly the method wherein the geometric parameters and the further geometric parameters are adjusted according to anatomical features of a knee joint so as to allow automatic selection of templates representing femoral and tibial components of a knee prosthesis. However it would have been obvious to have used the artificial bone template selection method of Tanaka because the method allows the selection of suitable template for any bone in the body by using vector data to deform the shape of a perspective templates to match the shape of knee joint bone e.g. femur and tibia bones.

As to claim 11, note the discussion of claim 6 above.

As to claim 12, note the discussion of claim 7 above.

As to claim 13, note the discussion of claim 8 above.

Claims 19-21 and differ from claim 6-8, only in that claims 19-21 are computer program product claims whereas, claim 6-8 are method claims. Thus, claims 19-21 are analyzed as previously discussed with respect to claims 6-8 above.

Claims 24-26 and differ from claim 6-8, only in that claims 24-26 are computer program product claims whereas, claim 6-8 are method claims. Thus, claims 24-26 are analyzed as previously discussed with respect to claims 6-8 above.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Inquires

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrae S. Allison whose telephone number is (571) 270-1052. The examiner can normally be reached on Monday-Friday, 8:00 am - 5:00 +- pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samir Ahmed can be reached on (571) 272-7413. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Andrae Allison

July 3, 2007

A.A.

SAMIR AHMED
PRIMARY EXAMINER